Quick Start Guide

1.0 Introduction to the Catalyst

1.1 What is an Autodialer/RTU?

The Catalyst RTU (Remote Telemetry Unit) functions as an auto-dialing remote alarm monitor and data logger. Auto-dialers and RTUs are typically used at remote, unattended locations, to monitor the condition of automatic equipment. The mission of an Autodialer/RTU is to compare inputs against alarm criteria. Then if alarm violations occur, the RTU calls maintenance personnel (or a central station computer) to inform them of the "out of normal" condition at the remote site. Alarm notification reports are typically made to operators as voice reports. However, data reports to central computers can be made as well.

All user programming configurations, including recorded messages, are maintained in permanent non-volatile flash memory within the Catalyst. This information can also be stored on a local hard disk with the use of Alarmware™.

The Catalyst RTU incorporates extremely thorough and effective electrical surge protection, as well as overall rugged construction, to deliver reliable operation under real-world conditions.

The RTU is factory equipped with 4 physical inputs known to the RTU as **Channels**. In the Catalyst RTU channels are of two classes**: Physical Input Channels** and **Industrial Network Channels**. The RTU can input data from channels of both classes - physical and industrial network. Furthermore, both physical and industrial network channels can be one of two data types - **Discrete** or **Analog**.

- **Physical Channels** are channels whose input circuitry is *physically* a part of the RTU hardware. Physical Input channels are monitored and controlled directly by the RTU microprocessor hardware. The connection between the RTU and its physical channels cannot be broken. So they will never cause communications failure alarms, or, be unable to access channel data.
- **Industrial Network Channels** are channels that are not physically a part of the RTU hardware. In fact, the RTU may access Industrial Network Channels that:

    (a) physically reside in several different units simultaneously
    (b) are located in different types of equipment
    (c) may be from many different manufacturers
    (d) need not be located in close proximity to the RTU

Industrial Network Channel data is monitored and controlled over industrial networks. Industrial networks are usually, but not always, serial data communications interfaces. Common types of industrial networks are Modbus, Modbus Plus, and Allen-Bradley DH-485.

The most common type of device interfaced to the Catalyst RTU via an industrial network is the Programmable Logic Controller (PLC). Data in a PLC resides in its *data table*. Individual locations in the PLC data table are called *data registers*. Data registers can represent inputs, outputs, general-purpose memory, and PLC status points. Almost any data register in a PLC can become a channel to the RTU.

Industrial network channel data is kept current by the RTU continually scanning (making queries to) PLC data registers. However, unlike physical channels, industrial network interfaces may get interrupted or

broken or may become congested by network traffic. Therefore, industrial network channel data may become inaccessible. Industrial networks that become inaccessible can cause communications failure alarms.

When a channel's configured alarm violation condition occurs and persists for the programmed Alarm Trip Delay time, the channel goes into an **Unacknowledged Alarm state,** and the RTU begins the process of communicating with designated **destinations** to deliver the specific alarm information.

The most common type of Destination is telephone numbers, to which the Catalyst places alarm calls and delivers specific corresponding voice messages which the user has pre-recorded to identify the exact nature of the alarm condition. However, destinations can also include other items, such as a pager, a Fax Machine, or a remote data terminal.

The process of alarm notification continues until a proper acknowledgement has been received by the RTU.

Certain special "global" events not associated with any particular channel can also cause alarms. Examples are; interruption of primary power to the product, which would cause a **power failure alarm (PFAIL)**, or failure of industrial network interfaces to PLCs, which would cause a **communications failure alarm.**

Delivery of the alarm message may be in the form of a **voice call** directly to personnel, as described above. Alternatively, calls may be made in **data mode**. With data mode calls, the product establishes modem communication with a called device for the purpose of transmitting information in a non-voice data format.

The RTU can also be programmed to take **data samples** ("snapshot" readings) from its active channels on a regular interval basis. These channel data samples can be stored in the RTU log file and/or written to the local data logger (printer). The RTU can be called for retrieval of log file data by a remote data terminal or Alarmware. The burden of retrieving data logs is generally on the operator. However, a configurable parameter of the RTU allows for RTU initiated automatic transfer of logged data to the central computer, should the log file reserve approach the overflow level before the central computer calls the RTU.

Input channels may also optionally be configured to export their contents to **specific Destination Network Addresses (DNA)**. This function can be used to link one point in a network to another point. This export process refreshes at the scan rate of the industrial networks involved in the transfer process.

Note: DNA are not to be confused with destinations, to which reports are delivered only under certain conditions such as an Unacknowledged Alarms.

1.2 Placing Phone Calls to the RTU

You may call the Catalyst RTU at any time from any telephone. The product will wait the configured number of rings before answering and beginning a voice status report. The status report starts with the Unit ID message, followed by a request for entry of any touch-tone digit. Entering a tone will establish that this is to be a voice mode session, rather than a data mode (modem) session.

Exception: If PINs (Personal Identification Numbers) have been configured, the RTU will require entry of a valid PIN before proceeding.

Next will follow any special warning messages, followed by a channel status report. The channel status report will report only the channels whose alarm state is "other than normal". If there are no channels

whose alarm state is "other than normal," then channel status report will simply consist of a statement that, "All Channels Are Normal."

Note: "Other than normal" channels can include channels which were at one time unacknowledged, became acknowledged, and are now still acknowledged but awaiting the end of the alarm reset time before becoming rearmed.

After the channel status report (or "All Channels Are Normal" message) the user will hear a prompt consisting of a menu of available options.

The purpose of this prompt is to invite the user do one of the following:

- To acknowledge any unacknowledged alarms
- To terminate the call without acknowledging any alarms
- To repeat the channel status report
- To enter other RTU modes such as program, search, or "read-only program"

In program mode, the user can enter keycodes to perform configuration changes. While in "read-only program" mode the user can listen to configuration information, but cannot make any configuration changes.

1.3 Voice and Text Messages

The RTU is capable of using both *voice messages* and *text* (data mode) messages:

Voice Messages:

- The RTU incorporates its own resident vocabulary of "canned" speech, and it also allows users to record their own voice messages for more meaningful and descriptive reports.
- The resident speech is used to support programming operations when programming at the Front Panel or over the phone.
- Resident speech is also used to create factory default voice messages for use in voice reports to personnel until the user replaces them with their own recorded voice messages.

Text Messages:

- In addition to voice messages for communicating directly with personnel, the RTU provides text messages that are included in reports to data devices such as a log file, a central station computer, a local printer, and Fax machine.
- As with voice messages, the RTU has factory default "generic" messages, but allows users to configure their own text messages.

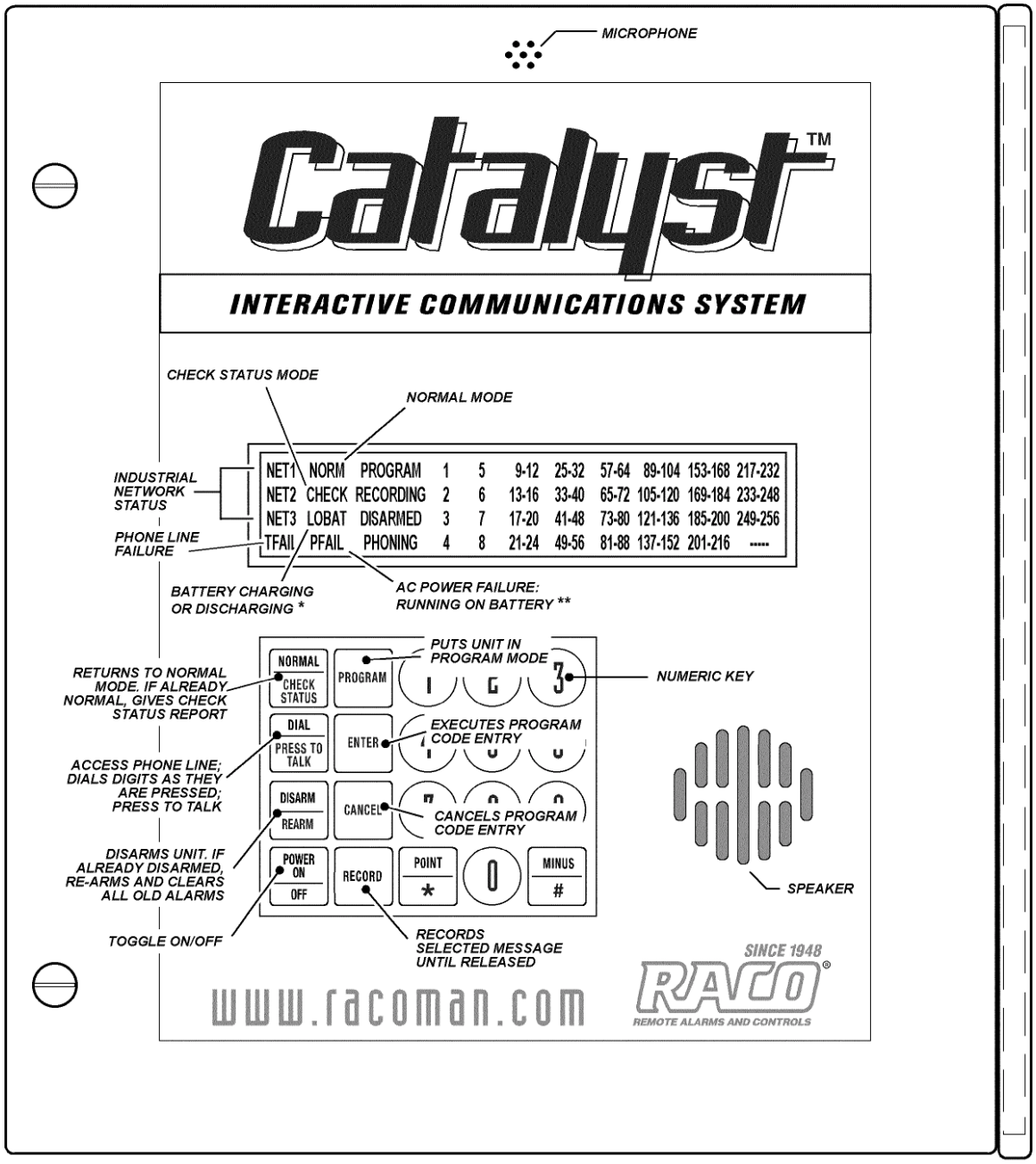
Message organization (applies to both voice and text messages):

- The RTU provides for two voice messages and two corresponding text messages for use in communicating the status of each input channel. The specific way these two messages are used in reports depends upon whether the input channel is configured for analog (having a continuous range of possible values) or discrete (having just two possible values, 0 or 1) data type.

Tag Words:

- In addition to these user configurable messages, the RTU automatically appends Tag Words to the end of each channel's status message in reports. These Tag Words provide additional indication of the channel's state (Alarm, Normal, etc.) as distinct from its current status reading. Factory default Tag Words are provided, but as with messages, the user may customize them in the configuration process.

1.4 The RTU Front Panel



* A discharged battery may take up to a day to fully charge. Meanwhile, the light may remain on.

** During Primary power failure, all illuminated LEDs will flash to conserve battery power.

The Front Panel keys operate as follows:

NORMAL / CHECK STATUS	Returns Catalyst to NORMAL mode. If already NORMAL, gives Check Status report (a report of any channels in alarm). Also terminates calls and reports.
DIAL OUT / PRESS TO TALK	Accesses phone line; prepares to dial digits as they are pressed. Press to talk and release to listen.
DISARM / RE-ARM	Disarms unit (which prevents notification). If already disarmed, re-arms unit and clears old alarms.
POWER ON / POWER OFF	Turns unit OFF. If already OFF, turns unit ON.
PROGRAM	Puts unit in PROGRAM mode.
ENTER	Executes program code entry.
CANCEL	Cancels program code entry.
RECORD	Records message while pressed. Requires key code in PROGRAM mode to enable.

Note: If there are any unacknowledged alarms, pressing any of the keys listed above will acknowledge the alarms, regardless of any PIN settings.

Front Panel LEDs operate as follows:

NORM	ON when in NORMAL mode.
CHECK	ON when in CHECK STATUS mode, local report being delivered.
LOBAT	ON when battery voltage falls below a threshold value. With fully charged battery, light should go OFF within a few minutes of turning ON. A discharged battery may take up to a day to fully recharge. • If there is a BFAIL (battery below threshold value) and a PFAIL (power failure), the LOBAT LED is ON and the battery is LOW. • If there is a BFAIL, but no PFAIL, the LOBAT LED is ON, but the battery is CHARGING.
PFAIL	ON during primary power failure and running on battery. During primary power failure, all LEDs will blink faster than normal. Upon return of power, all LEDs will stop blinking.
TFAIL	▪ OFF if there is no unacknowledged TFAIL ▪ BLINK fast during unacknowledged TFAIL

NET	Net 1 PLC ▪ OFF if scan is OFF ▪ ON if scan is ON ▪ BLINK if scan is ON and any channels on this net are in Communication ALARM (whether acknowledged or not) Net 2 Printer: ▪ ON when enabled ▪ OFF when disabled ▪ Blink if device is flow-controlling the port Net 3 Alarmware: ▪ OFF if no Alarmware™ session is active ▪ ON if Alarmware™ session is active Net 4 Log File: ▪ ON when enabled ▪ OFF when disabled ▪ Blink when data is being lost
PROGRAM	ON when in PROGRAM mode via Front Panel, Over the Phone, or Alarmware™.
RECORDING	ON when message is being recorded.
DISARMED	BLINK when unit is disarmed.
PHONING	▪ ON when off-hook for any reason ▪ SLOW BLINK during intersession delay. ▪ Otherwise LED is OFF
CHANNEL LEDs	▪ BLINK when channel in ALARM state ▪ ON when alarm acknowledged Regardless of when a channel is alarmed, the channel alarm LED will be in sync with all active channel alarm LEDs.
---	▪ BLINK when Log File is Full ▪ ON when Log File is ENABLED ▪ OFF when Log File is DISABLED

Note: Front panel LED representations in Alarmware™ should behave exactly as the Front Panel LEDs behave.

1.5 Manually Dialing Out and Conversing through the RTU

Occasionally it is desirable to manually place outgoing calls from the RTU in order to converse with someone by phone line connection.

The following describes how to do this:

- At the Front Panel, starting in the Normal mode, press the DIALOUT/PRESS TO TALK key, wait until you hear a dial tone, then press the digits of the phone number you want to dial. Each digit you press will be dialed as you press it. You will then hear the sound of the ringing at the other end.
- When you hear the phone answered, press and hold the same DIALOUT/PRESS TO TALK key as you speak to the person on the line. Release the key to listen. Continue the conversation in this manner. The microphone at the top of the front panel will capture your voice for this purpose.
- To end the call, press NORMAL.
- If you are at the Front Panel when a phone call is in progress, you may suspend the message report and converse with the person on the other end by pressing the DIALOUT/PRESS TO

TALK key as described above. There will be no additional dialing, since connection has already been established. To end the call, press NORMAL.

NOTE: Pressing these keys on the front panel will automatically acknowledge any unacknowledged alarms, regardless of any PIN configurations.

1.6 Programming/Configuring the RTU

There are three different methods to configure the Catalyst RTU:

1. Using the keypad at the Front Panel
2. Using the touch-tone keys of a voice telephone
3. Using the Alarmware™ configuration software

One Important Exception: User Recorded Voice Messages

The initial recording of user recorded voice messages must be done either at the RTU front panel or via a voice phone call to the RTU, rather than from Alarmware™. However once the messages are recorded, the recorded message data can be transferred back to the computer running Alarmware™ just as with other configuration data, to be saved for later use. This transfer process does take substantial time, since recorded messages require a lot of data in comparison with other configuration settings.

1.6.1 Programming with Alarmware™ Configuration Software

Alarmware™ is an application program used primarily to configure the Catalyst. The application runs on personal computers running the Microsoft Windows 95 or 98 and Windows NT operating systems.

In addition to configuring the Catalyst, Alarmware™ can be used to:

- Monitor alarms
- Observe channel values and statuses
- Transfer and manipulate RTU log files
- Perform various diagnostic procedures relevant to the Catalyst

Using Alarmware™, configuration files can be created, retrieved from storage, and retrieved from, or sent to the Catalyst. Configuration files can also be edited off line, with any changes exported to the RTU a later time. This transfer of configuration files between the RTU and a PC computer running Alarmware™ can be accomplished locally via a serial port connection to the RTU, or remotely via a telephone/modem connection.

1.6.2 Programming from the Front Panel or Over the Phone

In addition to programming via Alarmware™, many configurable settings may also be programmed from either the Catalyst Front Panel, or by using touch-tone entries from a voice phone.

2.0 The Alarmware™ Program: Brief Overview

2.1 What is Alarmware™?

Please Note: This set of topics is meant to provide a basic overview of the Alarmware™ software program. The Operator's Manual section covers terminology, concepts, and the use of Alarmware™ in more detail.

Alarmware™ is a software application designed for use in combination with personal computers running Microsoft Windows™ and RACO's Catalyst. Alarmware™ allows an operator to configure an RTU, to monitor alarms, and to perform various diagnostic routines relevant to the RTU.

Caution: Configurations changed by means other than Alarmware™, including speech data, should still be subsequently imported into Alarmware™ so that they will be available should there ever be need to restore configurations for the RTU.

When opened, Alarmware™ presents three top menu choices in addition to Help and Exit:

SELECT RTU Used to select which RTU to manage. *This is the most commonly selected top menu item.*

OPTIONS Includes settings for:

- The com port and modem on the computer running Alarmware™
- An optional Alarmware™ retained PIN (Personal Identification Number)
- Session timeout limit for Alarmware™ (not the Catalyst)
- AutoSave interval for automatic saving of configuration files to disk when working offline.

LOG FILE Allows opening a currently saved log file for a specific RTU.

2.2 Selecting an RTU and Using Alarmware™ to Configure It

Alarmware™ can be used to configure the Catalyst RTU online or offline. First, a database configuration file must been created within Alarmware™. To create a Catalyst database, use the ADD or EDIT buttons on the initial Select RTU dialog box. You now have three choices:

1) By connecting with the RTU to be configured, via Phone or via Serial port, and working online. When you make configuration changes as required from the Configuration Settings menu, both the connected RTU and the corresponding Alarmware™ configuration file for that RTU will be updated immediately as each change is made.

2) By delaying connection and working offline. Selecting the RTU and making configuration settings or changes within Alarmware™ as required. After ending the offline session you would again select the same RTU to be configured or updated, and then make online connection as described above. In this case, a Database Mismatch dialog will appear (because the two databases no longer match). Choose Export to RTU. Alarmware™ will write (export) the data back to the RTU. When the process is completed, your RTU will now be configured as its corresponding file within Alarmware™ was configured.

3) By using one RTU configuration file as the starting point for the configuration of another RTU. Using the Copy feature, available from the top menu after a configuration session is underway. This can save substantial time in systems with multiple RTUs requiring similar configurations.

***Note**: When an RTU is added, the model number must be correctly selected from the list presented before proceeding.*

When working with an RTU configuration offline, an Offline Status Window shows a representation of the front panel LEDs. When offline, clicking on channel LEDs, or on Net LEDs, brings up a corresponding configuration dialog box for the item selected.

When working with an RTU configuration online, an Online Status Window shows a similar representation of the front panel LEDs, but in this case the window provides a "live" display of how they actually appear currently on the RTU Front Panel.

From this Online Status window, you can click on the PLC LED, to view the status and error history for the PLC Net. Click on the Printer, Aware, or LogFile LED to view or change the device settings.

Also from this Online Status window, you can click on a channel LED to view the current Direct Channel Reading for that channel, along with its Raw Value reading and "Alarm/Normal" state.

The Online window also contains 4 button controls, to Arm/Disarm, Acknowledge Alarms, Disconnect RTU and check an External Net Address.

In either case, clicking Configuration on the menu allows you to proceed with RTU configuration.

***Note**: At the end of any Alarmware™ online session, if there are any unacknowledged alarms, they will be cleared out (corresponding to what otherwise happens when the respective Alarm Reset Timers time out). Then, if there are any alarm criteria violations existing, after the respective Alarm Trip Delays elapse, new unacknowledged alarms will be created.*

2.3 Configuration Items within Alarmware™

With a Catalyst selected, and working online or offline, the following configuration items will be available from the Alarmware™ Configuration menu:

- **Channel Settings** – Alarm violation criteria, reporting formats, etc.
- **Device Settings** – Phone, Printer, Log File, and various port settings
- **Destination Settings** – Phone numbers, destination types, etc.
- **Message Settings** – Text messages of all types
- **Session Parameter Settings** – Timeouts, Delays, Redial Attempts, etc.
- **Annunciation Settings** – Common trip delay, phone fault test, etc.
- **PIN Settings** – Personal Identification Numbers
- **Cleardown** -- Features

2.4 Channel Settings

The Channel Settings dialog box allows you to select any particular channel you need to configure. Each channel to be used must be given a *Source Network Address (SNA).* The SNA identifies the specific address location on the RTU or industrial network that this channel will continually scan. The physical channel data types (discreet or analog) should be correctly set before entering other channel settings. *See 2.10.2 Device Settings, Physical IO tab in Operator's Manual* to set the physical channel data types.

You may also optionally enter a *Destination Network Address (DNA)*. The DNA (not to be confused with destinations), identifies an address location to which the channel would continually write its value at the RTU scan rate.

Other items to enter from this dialog box include:

- The Reporting Format and Value Scaling that specify how raw values scanned are translated into readings and reports.
- The Alarm Violation Criteria, which specifies what (if anything) constitutes an alarm violation.
- The Alarm Trip Delay (if different from the factory default or from your own established Common Alarm Trip Delay).
- This dialog box also includes a Messages button that provides a shortcut to the corresponding Messages dialog box for this particular channel.
- Copy From and Copy To buttons facilitates setting up similar channels within a given RTU configuration. Messages (voice and text) are not included in this copying process.

2.5 Device Settings

The Device Settings dialog box includes tabs for the following device settings:

- **Phone Configuration**: Contains parameters for phone configuration
- **Physical Inputs:** Allows you to select the physical channel type (analog or discrete)
- **Modbus Port:** Ability to modify Modbus parameters and timers
- **Alarmware Port:** The only parameter that can be changed is the baud rate connecting the Catalyst and Alarmware.
- **Time & Date:** Set the clock and associated parameters
- **Log File:** When enabled, allows you to save Catalyst data, filtered by selection.
- **Printer:** When enabled, text messages are sent to the local data logger, filtered by selection.
- **Modem settings:** (not normally a user configured item)

2.6 Destination Settings

The Destination Settings dialog box is used to establish the Destination number and Destination type, as well as a name that will be assigned to this Destination in text reports. The text ID name entry is important in order for the text reports to be fully descriptive.

In general, a Destination is considered a "receiver" of reports that are sent by the Catalyst when certain conditions (such as an Unacknowledged Alarm) exists.

Available Destination types are:

- **Telephone** (for personnel to receive alarm calls)
- **Numeric/Beeping Pager**
- **Alphanumeric Pager**
- **Fax Machine**
- **Remote Data Terminal** (a central computer running a terminal program such as HyperTerm or Procomm)
- **PBX/Local Paging System**
- **Central Station** to be used in conjunction with RACO SCADA application.

The selection of Destination type in turn determines the other relevant configuration items for this Destination, which are displayed under various tabs in the Destination Settings dialog box. For example, the most common Destination type is Telephone, for which a telephone number is an important parameter to set.

The Destination Settings dialog box also has a **Groups** button, which takes the user to the Destination / Channel Groups dialog box. This provides a convenient means to link selected destinations to selected channels (or alternatively, channels to destinations). For example, grouping might be used to cause channels dealing with electrical problems to report to the electrical crew, plumbing problems to report to the plumbing crew, etc.

The *factory default is for all channels to be linked to all destinations.*

The Copy From and Copy To buttons facilitate the easy configuring of multiple destinations with similar settings.

2.7 Message Settings

First select a Message "type". The choices are:

- RTU Name
- Net Name
- Destination Name
- PIN Name
- Channel Status

For each type selection, a specific corresponding format is presented for entry of the corresponding name(s) or message(s) to be used in text reports. *In the case of channel status messages, there are two text messages for each channel*. The specific way in which the two messages are used to report the status of the channel depends upon whether the channel is analog type (having a continuous range of possible values) or discrete type (having only two possible values, 0 or 1). In either case, the dialog box provides guidance as to how to enter the desired text messages.

There is also a **Tag Words** button that presents a dialog box for entry of user-defined Tag Words, which are automatically included in channel status text reports to indicate the state of a channel, as distinct from its current reading.

Provision is also included for limited management of user recorded speech messages corresponding to the selected message item.

2.8 Session Parameters

The Session Parameters dialog box includes settings for:

- The number of **redial attempts** to reach a given Destination (if a busy signal is detected on the first try)
- The **Session Inactivity timeout** period after which the RTU will terminate a Front Panel, Over the Phone or Alarmware™ session if user interaction ceases
- The basis for **reporting priority** (lowest channel number versus lowest Destination number)
- The **Intersession Delay** between alarm call reports
- **Microphone listening** on/off (provides for a listening period via the RTU built-in microphone)
- During voice sessions, give the **Menu Prompt** the number of times configured here.
- When starting a **data session** , **wait** no more than this number of seconds to determine the **protocol**

2.9 Annunciation Settings

The Annunciation Settings dialog box allows the user to set:

- **Common Alarm Trip Delay --** which is used by default for all active channels. This value may be customized for each channel.
- **Power Failure Alarm Trip Delay –** separate from Channel trip delays.
- **Alarm Reset Time** -- Controls how long, after acknowledgement, a channel will have its Acknowledged Alarm state cleared to NORMAL. The channel is reset so that it will be capable of tripping into alarm when the next violation occurs.
- **Interval for checking phone line** – Phone line connection test schedule.
- **Test Callback Schedule** – set base time and frequency of Autocalls.
- **Calls to RTU Acknowledge Alarms?** -- Whether or not an incoming call automatically acknowledge alarms.

2.10 PIN Settings

The PINs dialog box allows you to add and edit PINs (Personal Identification Numbers). When PINs are configured, the RTU will require entry of a valid PIN number before allowing various levels of operations.

Each PIN configuration requires:

- an ordinal **PIN number**
- the **PIN code**
- a **PIN Name** which will be included in text reports to provide an audit trail for various operations
- a **Privilege** level which determines the individual's ability to listen to reports, acknowledge alarms, change RTU configurations (excluding PIN settings), and perform administrative level operations (including PIN settings).

A Separate provision is made for an optional retaining of one of these configured PINs. This feature enables the PIN to be entered automatically upon connecting with an RTU. This will save the Alarmware™ operator from having to manually enter the PIN.

*Note: Even if PINs are programmed, access to front panel operations on the RTU does **not** require PIN entry.*

2.11 Cleardowns

The Cleardowns dialog box is used to clear down RTU settings and messages to factory default values. Cleardown should be used with caution. It takes considerable time to record a large set of voice messages, and the voice messages will be deleted as part of the cleardown process.

3.0 Using this Documentation

3.1 Typographic Conventions

Throughout this documentation, both in the Online Help System and in this User's Manual, various conventions are used to identify pertinent information.

- All *Notes* and *Exceptions* are placed in *Italics*. Notes and Exceptions represent important additional information. Also, some Help topics which are associated with the Help button within certain dialog boxes, have an italicized description of how to access the dialog box, appearing at the beginning of the topic, for the benefit of users who are referring to the printed manual version of the Help System.
- In the Online Help System, Links to other Help pages are underlined and green in color.
- Items that are ALL CAPITALS reference the names of keys, lights, LEDs, or when referring to a mode to which the RTU is placed (for example, PROGRAM mode).

3.2 Helpful References

While using this documentation, there are several sections that you may find quite helpful as references. This is true for both the User's Manual, and the Online Help System. For Online Help you may wish to utilize the Bookmark feature within Windows Help to mark these sections for easy reference.

3.3 How To Print Documentation

- **Help Topics** — To print a Help Topic, click on the Print button at the top of the topic window.
- **Tables** — To print a table, select desired table and click on the Print Topic button at the top of the topic window.
- **Worksheets** — When Worksheets are selected, the file will be launched in the appropriate application. To print the worksheet, select "Print" from the application's File menu.
- **Code Table** — To print the Code Table that contains the Keycodes for use in Front Panel or Over the Phone programming of the RTU, click on the Keycodes button on the Help toolbar of any help topic. Next, click on the Print Keycode Table link.
- **Entire Help Manual or Large Numbers of Help Topics** — To print large numbers of help topics start from the Help Contents dialog box. This is the dialog box you first see when selecting Help from the Alarmware™ main menu. Alternatively, in any help topic click on the Contents button. Select the Contents tab in the dialog box. Any selected book or page (topic) will be printed when the Print button (at the bottom of the dialog box) is clicked. When a book is selected for printing everything within that book will be printed including all topic pages plus other books and pages within the selected book. By selecting in turn, each of the outermost books in the table of contents, the entire Help System could be printed.